UNITED STATES DEPARTMENT OF AGRICULTURE
2 U.S. AGRICULTURAL RESEARCH SERVICE
ANIMAL HEALTH DIVISION
FEDERAL CENTER BUILDING
HYATTSVILLE, MARYLAND 20781

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REPORT OF COOPERATIVE TICK ERADICATION ACTIVITIES

Fiscal Year 1965

SEPTEMBER 9, 1965

THE ERADICATION PROGRAM

Cattle fever ticks Boophilus annulatus and Boophilus microplus spread bovine piroplasmosis--a severe and often fatal disease of cattle. It is also known as cattle tick fever, southern cattle fever, splenetic fever, and Texas fever.

Tick larvae hatch from eggs laid on the ground, become attached to animals occupying infested premises, feed upon the host animal--and thus transmit the disease--molt, mate, and the engorged female drops to the ground to deposit her eggs and thus the ticks are perpetuated.

An all-out eradication program was instituted in 1906. Thirty-seven years later, in 1943, the tick had been eradicated from the United States, except for a narrow buffer zone under Federal and State quarantines along the Texas-Mexico border. There, reinfestations occur and an active program is required to prevent additional spread into adjacent areas. Reinfestations have also occurred in California and in Florida from time to time.

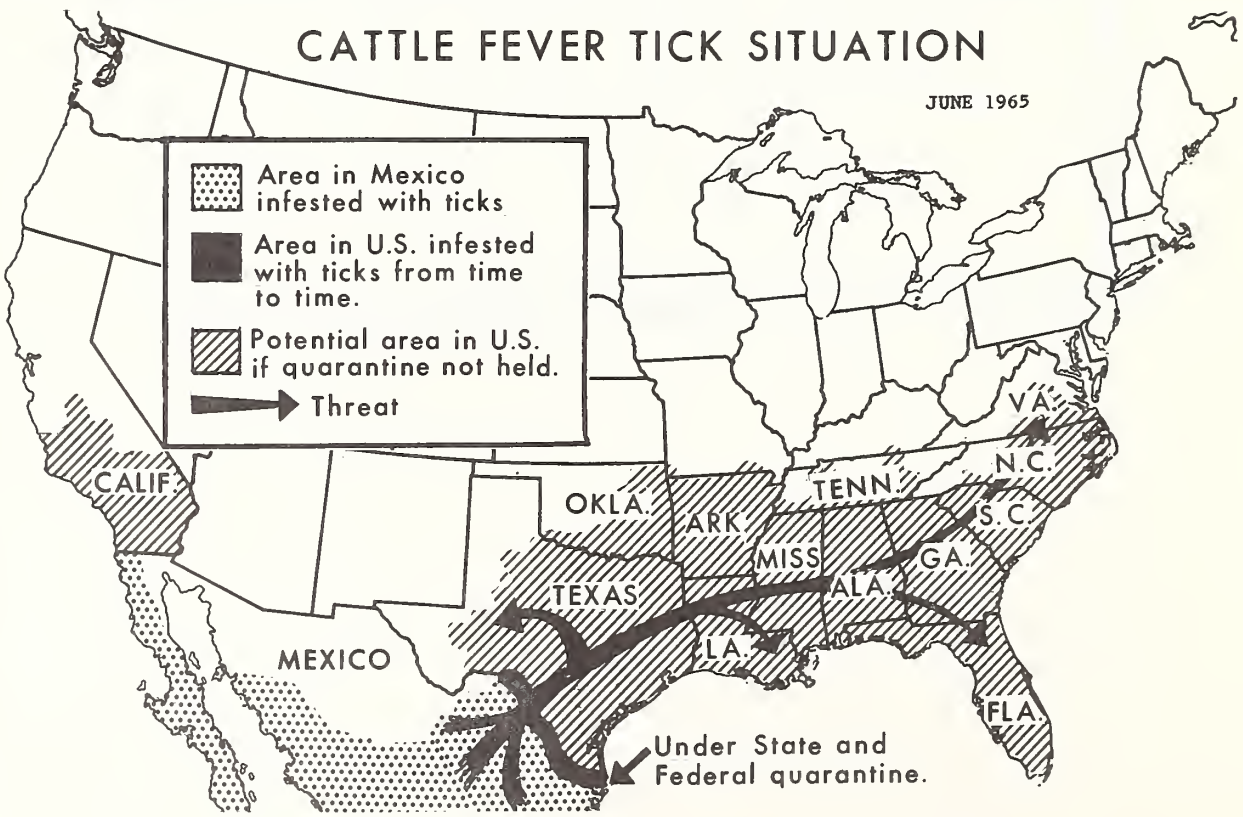
The eradication program includes inspection, quarantine, and dipping of infested animals.

PROGRAM GOALS

Prevention--keeping the ticks out of the United States--is a major part of the effort against cattle fever ticks. A quarantine zone is maintained along the international boundary and the lower Rio Grande River in eight Texas counties as adjacent areas in Mexico are infested. Cattle from Mexico are carefully inspected for ticks at the border. They must be free of ticks and must be given a precautionary dipping before they can be imported.

Without these controls, cattle fever ticks would reinfest areas of the United States that have warm climates. In spite of continued efforts to keep out these parasites, they have reappeared from time to time, but vigilance and prompt eradication measures have eliminated the outbreaks.

Should the ticks gain a foothold, piroplasma-carrier cattle imported from Mexico could furnish reservoirs leading to heavy losses in our cattle population.



ACTIVE PROGRAM CONTINUES IN TEXAS

As the territory in Mexico adjacent to the international boundary along the lower Rio Grande River is tick infested, reinfestations in Texas by ticks carried by Mexican animals illegally entering the United States occur regularly. The river, serving as the boundary, is not an effective barrier against such illegal movements. A buffer area, under Federal and State quarantine, extends from Del Rio to the Gulf of Mexico, approximately 500 miles. This zone is constantly patrolled by Department inspectors who, in cooperation with Texas livestock sanitary authorities, work diligently to reduce the introduction and prevent the dissemination of the ticks. The area under quarantine includes parts of Cameron, Hidalgo, Kinney, Maverick, Starr, Val Verde, Webb and Zapata counties. Slight modifications were made along the quarantine line in August 1964 and in August 1965. In addition to the activities shown below, 504 ticks were collected for survey purposes, 25 samples of suspected screwworms and 9 skin scraping samples were submitted for identification and 8 other disease conditions reported.

REPORT OF ACTIVITIES IN BUFFER AREAS

FISCAL YEARS 1960 THROUGH 1965 AND IN 1952

Illegally Entering Mexican Livestock Caught	1965	1964	1963	1962	1961	1960	1952
Equine - tick-infested	108 - 0	133 - 1	122 - 4	120 - 9	61 - 2	41 - 3	1,873 - 183
Cattle - tick-infested	54 - 11	239 - 42	139 - 41	59 - 26	17 - 8	50 - 21	147 - 82
Sheep and Goats - tick-infested	0 - 0	6 - 0	1 - 0	5 - 0	1 - 0	1 - 0	0 - 0
American Livestock Straying to Mexico and Returning	56 - 0	18 - 1	51 - 0	17 - 0	8 - 0	31 - 0	7 - 0
Inspected for Ticks							
Systematic Area							
Herds	47,501	47,214	49,080	42,298	35,269	35,380	32,363
Livestock	1,308,526	1,388,816	1,381,195	926,872	739,959	741,286	558,809
Final Area							
Herds	18,363	16,562	16,695	14,879	15,653	12,771	12,011
Livestock	574,883	349,027	344,814	297,304	293,830	304,590	168,088
Dipped for Ticks							
Systematic Area							
Herds	12,517	11,731	11,847	10,424	10,382	9,556	13,845
Livestock	81,914	80,895	88,518	56,655	58,201	52,743	81,685
Final Area							
Herds	702	478	606	641	529	382	113
Livestock	3,251	1,784	2,815	2,184	4,950	1,047	1,323
Intrastate Certificates Issued							
Number of Certificates	13,882	14,685	14,556	14,023	13,046	12,435	14,913
Number of Livestock	70,368	99,294	188,732	123,257	83,952	76,659	57,704
Interstate Certificates Issued							
Number of Certificates	10	56	67	65	66	172	13
Number of Livestock	1,860	6,667	8,134	7,205	12,668	21,390	808
Herds Held for Further Treatment							
Systematic Area	28	20	48	14	5	17	92
Final Area	1	0	0	0	4	4	0
Tick-Infested Herds Found							
Systematic Area	16	4	38	21	1	4	29
Final Area	0	0	1	0	0	0	1
Exposures to Clean Premises	36	26	68	16	25	17	108
Re-exposures to Held Premises	1	3	3	5	1	4	73

PROGRESS IN PUERTO RICO AND THE U. S. VIRGIN ISLANDS

In Puerto Rico an active tick eradication program began in 1936. Here, the tropical variety of the fever tick, B. microplus, was prevalent and it was necessary to treat sheep and goats as well as equines and cattle, and to slaughter deer.

No cattle fever ticks have been found since December 1952. Systematic dippings were discontinued in May 1953 and systematic inspections discontinued in June 1954. Survey inspections for ticks are continuing.

The Islands of St. Croix, St. Thomas, and St. John, U. S. Virgin Islands remain tick infested.

EQUINE PIROPLASMOSIS SITUATION REPORT - SEPTEMBER 1965

Equine piroplasmosis (EP) is an infectious acute, subacute, or chronic hemoprotozoan disease of solipeds characterized by fever, anemia, icterus, and by other clinical signs arising from hemolytic anemia caused by the parasites. In the U.S. positive diagnosis (observations of parasites on blood smear examination) has revealed the following: Florida 150 cases, Georgia 4 cases, Puerto Rico 1 case.

Detection of equine piroplasmosis is difficult. Reliance is placed on finding the protozoa in the red blood cells. The parasites are most common in the peripheral circulation from the second to the fifth day following appearance of clinical signs; thereafter they gradually disappear. After death, the organisms may be found more readily in smears made from spleen, liver, and kidneys. Research is currently underway to develop a serological test. This work is showing promise.

EP can be caused by Babesia caballi or Babesia equi. In August 1961 the B. caballi organism was discovered and it remained the sole causative agent identified in the United States until March 1965. In March, B. equi was demonstrated from blood of a thoroughbred horse in Florida. The mortality rate from B. caballi is seen to be 20 percent. We are not able to fully assess the mortality rate that may be attributed to B. equi infection.

World-wide, at least fifteen species of ticks have been incriminated or proven to be vectors of the disease. Of these, at least two are definitely present in the United States: Rhipicephalus sanquineus, the brown dog tick, and Dermacentor nitens, the tropical horse tick. D. nitens, however, is the only tick proven to be a vector in the U.S.

The tropical horse tick (Dermacentor nitens) is a one-host tick. It was first reported in Jamaica and Santo Domingo in 1897; later in Argentina, Columbia, Central America, Mexico, Cuba, Haiti, and Trinidad. Heavy infestations were found in the ears of horses in a limited area in Texas as early as 1907. This tick is quite common in Puerto Rico and the U.S. Virgin Islands and is found on both cattle and horses. Collections have also been made from sheep, goats, mules, and deer.

Deterrents to the transmission of this disease include vector control, precautions against mechanical transmission, prompt reporting, and control of infected animals.

PARASITE IDENTIFICATION AND/OR CONFIRMATION AT BELTSVILLE ECTOPARASITE LABORATORY

Emphasis on the importance of collecting ticks from all livestock species for identification continued during FY 1965. A total of 2,396 lots of ticks were received and identified at the ANH Ectoparasite Laboratory, Beltsville, Maryland. During the same period, 456 mite specimens and 165 miscellaneous ectoparasite specimens were identified. Approximately 6,652 lots of suspected screwworm larvae were received and identified. Of these, some 610 lots were identified as screwworms; the remainder being classed as other various species of blow fly larvae.

A detailed report "NATIONAL TICK SURVEY - CY 1964" was distributed under the date of March 2, 1965.

MISCELLANEOUS TICK COLLECTIONS

Where Collected	Parasite	Remarks
Hawaii	Haemaphysalis wellingtoni	Head and external ear canal of imported Malay Argus pheasants.
Hawaii	Amblyomma americanum and Dermacentor variabilis	These ticks are exotic to Hawaii.
Texas	Haemaphysalis leachii leachii	From an imported African Nubian lion at a zoo.
Texas	Ixodes eadsi	Described as a new species of ticks.
Illinois	Ixodes cookei	From a ring-tailed cat at a zoo.
Illinois	Amblyomma cyprium and A. rotundatum	From iguana at a zoo.
Utah	Amblyomma dissimile	Alligator at a zoo.
Maryland	Amblyomma gemma	Game trophies at port.
Maryland	Amblyomma lepidum	Zebra hides at port.
Indiana	Amblyomma dissimile	Iguana.
Florida	Amblyomma marmoreum	Leopard tortoise.
South Carolina	Ixodes affinis	From a deer in South Carolina.
Alabama	Rhipicephalus sanguineus	From a dog shipped from Africa.

COLLECTIONS OF DERMATOBIA HOMINIS

Torsalo (Dermatobia Hominis), The Human Warble Fly Reported in the United States

In April 1964, Dermatobia hominis (Linnė Jr. 1781), the human warble fly, was reported in the United States. The second stage larval instar was found in the subcutis of a dog recently arrived in Wisconsin from Costa Rica. In May 1964, D. hominis larvae were found in the leg and at the base of the tail of a tapir that had arrived at the Lincoln Park Zoo, Oklahoma City, from South America three weeks previously. The parasite was also collected at the Erie, Pennsylvania, Zoo from a tapir recently imported from South America. Reports indicate that this parasite is not uncommonly found infesting jaguars imported from tropical America.

Human cases were disclosed in Florida (January 1963) when physicians reported removal of two D. hominis larvae from a patient's ear--presumably infested during a hunting trip to Venzuela--and in November 1964 when three larvae were removed from leg abscesses of a student at the University of Texas, Austin.

TICK MANUAL REVISED

The "Manual on Livestock Ticks" was extensively revised and reprinted in June 1965 as ARS 91-49. The 142-page manual is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402--Price $1.25. It includes descriptions of ticks, drawings, keys for identification, life histories and habits, diseases transmitted, and other pertinent information.

There are some 400 known species of ticks in the world. Approximately 75 of these are found in the United States; of these, perhaps 20 are of veterinary interest.